

## INTERNATIONAL SEARCH REPORT

Inter national Application No  
PCT/IB2004/004429

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/52 C12P13/08 C12N9/16

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C12P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, EMBASE, WPI Data, PAJ, CHEM ABS Data, SCISEARCH, Sequence Search

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WITTMANN CHRISTOPH ET AL: "Genealogy profiling through strain improvement by using metabolic network analysis: Metabolic flux genealogy of several generations of lysine-producing Corynebacteria." APPLIED AND ENVIRONMENTAL MICROBIOLOGY, vol. 68, no. 12, December 2002 (2002-12), pages 5843-5859, XP001182634 ISSN: 0099-2240 the whole document</p> <p style="text-align: center;">----- -/-</p>	<p>1-3, 9-12,23, 28,29, 38-45, 48,49, 53,54</p>

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

8 June 2005

Date of mailing of the international search report

28/06/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Fotaki, M

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IB2004/004429

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>SAHM H ET AL: "PATHWAY ANALYSIS AND METABOLIC ENGINEERING IN CORYNEBACTERIUM GLUTAMICUM" BIOLOGICAL CHEMISTRY, XX, XX, vol. 381, no. 9/10, September 2000 (2000-09), pages 899-910, XP000979510 ISSN: 1431-6730 the whole document</p>	<p>1-3, 9-21,23, 28, 38-45, 48,49, 53,54</p>
X	<p>MARX A ET AL: "Metabolic phenotype of phosphoglucose isomerase mutants of Corynebacterium glutamicum" JOURNAL OF BIOTECHNOLOGY, ELSEVIER SCIENCE PUBLISHERS B.V., AMSTERDAM, NL, vol. 104, no. 1-3, 4 September 2003 (2003-09-04), pages 185-197, XP002263663 ISSN: 0168-1656 the whole document</p>	<p>1-3, 9-12,23, 28, 38-45, 48,49, 53,54</p>
Y	<p>OHNISHI J ET AL: "A novel methodology employing Corynebacterium glutamicum genome information to generate a new L-lysine-producing mutant" APPLIED MICROBIOLOGY AND BIOTECHNOLOGY, SPRINGER VERLAG, BERLIN, DE, vol. 58, no. 2, February 2002 (2002-02), pages 217-223, XP002289984 ISSN: 0175-7598 the whole document</p>	<p>1-3, 9-21,23, 28-45, 48,49, 53,54</p>
Y	<p>PFEFFERLE W ET AL: "BIOTECHNOLOGICAL MANUFACTURE OF LYSINE" ADVANCES IN BIOCHEMICAL ENGINEERING, BIOTECHNOLOGY, SPRINGER, BERLIN, DE, vol. 79, 2003, pages 59-112, XP008032623 ISSN: 0724-6145 the whole document</p>	<p>1-3, 9-21,23, 28-45, 48,49, 53,54</p>
Y	<p>EP 1 108 790 A (KYOWA HAKKO KOGYO KK) 20 June 2001 (2001-06-20)</p> <p>SEQ ID NO:7062 is 100% identical to SEQ ID NO:1 over the entire length of SEQ ID NO:1 SEQ ID NO:1136 (Table 1) is 100% identical to SEQ ID NO:1 over 963nt of SEQ ID NO:1 pages 1-35; table 1</p>	<p>1-3, 9-21,23, 28-45, 48,49, 53,54</p>

-/-

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IB2004/004429

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DOMINGUEZ H ET AL: "CARBON-FLUX DISTRIBUTION IN THE CENTRAL METABOLIC PATHWAYS OF CORYNEBACTERIUM GLUTAMICUM DURING GROWTH ON FRUCTOSE" EUROPEAN JOURNAL OF BIOCHEMISTRY, BERLIN, DE, vol. 254, no. 1, 15 May 1998 (1998-05-15), pages 96-102, XP000960354 ISSN: 0014-2956 -----	
A	KIEFER P ET AL: "Influence of glucose, fructose and sucrose as carbon sources on kinetics and stoichiometry of lysine production by Corynebacterium glutamicum" JOURNAL OF INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY, BASINGSTOKE, GB, vol. 28, no. 6, June 2002 (2002-06), pages 338-343, XP002287975 ISSN: 1367-5435 -----	
A	RITTMANN DORIS ET AL: "Fructose-1,6-bisphosphatase from Corynebacterium glutamicum: Expression and deletion of the fbp gene and biochemical characterization of the enzyme." ARCHIVES OF MICROBIOLOGY, vol. 180, no. 4, October 2003 (2003-10), pages 285-292, XP002291915 ISSN: 0302-8933 -----	
T	KIEFER P ET AL: "Comparative metabolic flux analysis of lysine-producing Corynebacterium glutamicum cultured on glucose or fructose" APPLIED AND ENVIRONMENTAL MICROBIOLOGY, WASHINGTON, DC, US, vol. 70, no. 1, January 2004 (2004-01), pages 229-239, XP002287976 ISSN: 0099-2240 the whole document -----	1-55

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IB2004/004429

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1108790 A	20-06-2001	EP 1108790 A2	20-06-2001
		JP 2002191370 A	09-07-2002
		US 2002197605 A1	26-12-2002